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(54) BORON CARBIDE PARTS FOR PLASMA REACTOR

(57)Abstract:

PROBLEM TO BE SOLVED: To prevent corrosion of a chamber by plasma by constituting the wall surfaces and other parts in a plasma reactor of composite constituting bodies formed by coating substrates of an aluminum base with boron carbide.

SOLUTION: Oxide on the aluminum surfaces is removed and the boron carbide is thermally sprayed thereto. The boron carbide is preferably B₄C. The annular zone 56 of an upper housing 14 constituting the wall surfaces in the plasma reactor is concealed by a mask and the anodically oxidized coating 54 of the annular zone 56 is removed by grit blasting. The B₄C is thermally sprayed to the annular zone 56 and to the side slightly outer than the same to form the B₄C layer 58 on the upper housing 14. Since the B₄C has resistance to high-density BCl₃ plasma, the thickness of the thermal spraying coating suffices with 125 to 250μm. The aluminium is soft and, therefore, the B₄C layer 58 adheres securely to the aluminum.

